DARPA SOLDIER ENHANCEMENT WORKSHOP

Combatant Needs/Requirements

Special Operational Forces

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References: US SOCOM Desired Operational Capabilities

Special Operations Forces Mission Design Considerations

Individual SOF Operator Modernization (JFKSWCS)

US Special Forces Needs/Requirements

Nature of the Physical Environment:

All operational and environmental extremes, subsurface, surface and above surface, day and especially at night. Global hundreds of ongoing missions at any one time.

Core missions: Unconventional warfare,
Direct Action, Special Reconnaissance, Foreign Internal Defense, Counter-Terrorism, Psychological Operations, and Civil Affairs.

Collateral Missions: Security Assistance, Humanitarian Assistance, Anti-Terrorism, Counter-Narcotics, Personnel Recovery, and other Special Activities.

Emerging Missions: Coalition Warfare, Combat Search and Rescue, Peacekeeping Operations, Counter Proliferation. And Information Warfare.

US Special Forces Needs/Requirements

Nature of the Physical Environment

Infiltration/Exfiltration: Air, Land Sea

Air: Static-line or free-fall parachute entry, rappel, fast rope and hoist operations.

Example SE Past ***Program: LEAP.***

Sea: Seal Delivery Vehicles (SDV), small boats, submarine lockouts, surface and subsurface swimming, free drop from helicopters, and water landing by amphibious aircraft.

Ongoing SE Programs: Tactile Display (navigation) and Swimmers Suit (heating capacity to allow for extended operation).

Land: foot or vehicle indirect or obscure routes in and out of the objective area.

Past*/Ongoing SE Program: BDS/SPEAR (Improved Environmental/Threat Protection, Load Distribution, Modular Hand wear, Signature Reduction.)*

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US Special Forces Needs/Requirements

Nature of the Physical Environment

Operational Conditions

	Conditions	Threats
Air:	Extreme cold and wind (HALO)	Radar detection, lesser spectral threats.
Sea:	Maritime Conditions (-40F Air to 30 F water)	Full range of spectral threats (radar through E-O). ballistic threats (If Detected)
Land:	Diverse Terrain and Climate Spectrally Diverse-Difficult CCD Climatically Diverse-Difficult Environmental Protection.	Full Range of spectral threats, ballistic& CB

US Special Forces Needs/Requirements

SOF Operator Loads

At the conclusion of the gulf war, ARL conducted a SOF operator load survey of A Teams formerly deployed to Desert Storm/Shield at the request of ASOC DCD Col.Weber

Total Loads Approach and Fighting in excess of 170lbs
Fighting in excess of 90 lbs.

Load study was conducted to access impact on performance and to determine if load distribution (double pack) could improve performance

End Result was a modular fighting vest mission/MOS tailorable transitioned into SPEAR.

US Special Forces Needs/Requirements

SOF Qualification Requirements

Reasonably reliable and relatively uncomplicated to operate but Less Than Big Army

Missions are diverse and specialized allowing for the incorporation of specialized equipment.

SOF is much smaller and has specialized teams for special missions.

SOF Operators are highly dedicated, have high I Qs, consequently are highly adaptable and trainable.

US Special Forces Needs/Requirements

Enabling capabilities that an SE device can provide?

US SOCOM

Desired Operational Capabilities (8 June 98)
10 stated DOCs (1&6 most applicable to soldier enhancement)

PURPOSE: The objective of Desired Operational Capabilities (DOCs) is to identify SOF future capabilities to support USSOCOM flagship capabilities. The DOCs listed below will be supported by new operational concepts, leap-ahead technologies and non-materiel solutions. Our goal is to ensure SOF is a full-spectrum,multi-mission force by providing a comprehensive set of capabilities.

US Special Forces Needs/Requirements

Enabling capabilities that an SE device can provide?

US SOCOM

Desired Operational Capabilities (8 June 98)

Personnel Survivability. Capability to improve the survivability of personnel conducting clandestine surveillance, and precision strike operations through signature reduction. Protect against directed energy weapons, chemical/biological agents and precursors, and extreme environmental conditions. Improve the physiological performance of personnel to increase their tolerance, endurance, enhance performance, sustainment, and alertness and reduce fatigue. Coordinate with medical agencies to ensure state of the art protection against NBC threats that are relevant in the WMD environment. Capability to ensure accurate readings of medical significance to NBC exposure and capability to provide real time patient status, and in-transit patient visibility to medical agencies.

US Special Forces Needs/Requirements

Enabling capabilities that an SE device can provide?

US SOCOM

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US Special Forces Needs/Requirements

Enabling capabilities that an SE device can provide?

US SOCOM

Desired Operational Capabilities (8 June 98)

6. Sensory Enhancements. Capability to augment human sensory systems to provide increased performance. Emphasis should be on increased visual performance. Capability for improved range, resolution, and/or obscurant/material penetration. Must be capable of linking with satellite or other off-board imaging systems. In addition, capability to visually detect chemical (liquid or vapor) and biological atmospheric agents.

US Special Forces Needs/Requirements

Enabling capabilities for an SE device?

Future Scenario that an SE device might provide: Team is airlifted by static line parachute in cargo plane flying low and fast to avoid enemy radar. Team members land safety at high PLF speeds thanks to the *SE device*. Team members assemble then move rapidly to objective at a low metabolic cost thanks to the *SE device*. Team members reach objective totally undetected by enemy, visible, near-IR, thermal, radar, and mmw sensors, thanks to the stealth capabilities incorporated into the SE device.

A team member-weapons specialist then fires on the move a " full solution" ballistic round at the target, thanks to the stabilization capabilities of the SE device.